



UNITED STATES PATENT AND TRADEMARK OFFICE

W.F.
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/682,583	10/09/2003	Arthur Monroe Turner	TI-37221	9763
23494	7590	12/03/2007	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			CHERRY, EUNCHA P	
		ART UNIT	PAPER NUMBER	
		2872		
		NOTIFICATION DATE		DELIVERY MODE
		12/03/2007		ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@ti.com
uspto@dlemail.itg.ti.com

Office Action Summary	Application No.	Applicant(s)
	10/682,583	TURNER ET AL.
	Examiner	Art Unit
	EUNCHA P. CHERRY	2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 06 September 2007.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 15-30 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-14 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 09 February 2004 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____.
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

Art Unit: 2872

DETAILED ACTION***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-6, 8, 9, 13 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Laor (US 6,760,506 B2).

Laor discloses a scanning device comprising a functional surface portion (Figs 22-25, 9 is mirror); a support structure (14) pivotally supporting said functional surface portion along a first axis (axis where hinges 13 lie) by a pair of torsional hinges (13) having a resonant frequency such that said pivoting of said functional surface portion about said pair of torsional hinges pivots about said first axis (along the axis where 13 lie); at least one first magnet located along said first axis (28); a first magnetic driver located below and cooperating with said at least one first magnet (32) for causing oscillation

Art Unit: 2872

about said pair of torsional hinges at a selected frequency; the first magnet has a diametral charge perpendicular to the axis of rotation and substantially parallel to said reflecting surface and wherein said first magnetic driver is at least one coil located proximate said one first magnet (see 28 and column 10, lines 59-60); at least one first magnet comprises two first magnets (see two 28s in Fig. 22A); at least one first magnet has an axial charge and wherein said magnetic driver is an electromagnet having legs extending to each side of its corresponding magnet (column 2, lines 25-52); the support structure comprises a gimbals portion connected to said functional surface along said first axis by said pair of torsional hinges (12) and a support member pivotally supporting the gimbal portion by a second pair of torsional hinges along an axis substantially orthogonal to the first axis (11), such that the pivoting of the device about the second pair of torsional hinges results in movement substantially orthogonal to the first direction (see the relationship between 11 and 13); at least two second magnets mounted along the second axis (30); a second magnetic driver (33) cooperating with the second magnets for pivoting the device about the second pair of torsional hinges to provide the orthogonal movement (see column 2, lines 36-60); the functional surface is a mirror or reflective surface and

Art Unit: 2872

oscillates at its resonant frequency (column 3, lines 15-23 and column 10, lines 40-41).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laor.

Laor discloses the claimed invention as set forth above except that the scanning device of the present invention is used as the drive engine of a printer or visual display device. It would have been obvious to one of ordinary skill in the art to use an optical switch of the present invention as the drive engine for a printer or visual display device for the purpose of controlling movable mirror precisely.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laor in view of Solgaard et al. (US 6,097,859).

Laor discloses the claimed invention as set forth above except for the functional surface being a light grating.

Art Unit: 2872

Solgaard et al discloses a grating optical switch that is controlled using MEMs technology (see abstract). It would have been obvious to one of ordinary skill in the art to replace plane mirror of present invention with an optical grating for the purpose of cross-connecting multi-wavelength.

Response to Arguments

6. Applicant's arguments filed 9/12/06 have been fully considered but they are not persuasive. Applicant argues that the axis 13 cannot be considered the axis referred to in claim 1, because the magnet must cooperate with the magnetic driver located below the mirror to cause oscillation about the first pair of torsion hinges. However, Fig. 22A shows magnet and magnet driver both being located below the mirror and the mirror 9 is pivotable about both 11 and 13, which satisfy the claimed limitations. Therefore, it appears that rejection is deemed proper.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action

Art Unit: 2872

is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to EUNCHA P. CHERRY whose telephone number is 571-272-2310. The examiner can normally be reached on M-F 6:30-4:00, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2872

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EUNCHA P. CHERRY
Primary Examiner
Art Unit 2872

11/26/07